ACOUSTICAL ANALYSIS REPORT

Tentative Map #5243 RPL (Vande Vegte)
County of San Diego
Fallbrook, California

Prepared For

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Job #A90101N1 (A10515)

November 16, 2001
Updated January 9, 2009

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ATTACHMENTS

1.0 EXECUTIVE SUMMARY

The proposed project is the subdivision of a 13.24 acre property located near the southern end of the intersection of Beavercreek Lane, in the Community of Fallbrook, in the County of San Diego, California. This is shown on the Tentative Map (TM) #5243. This TM will divide this property into eight lots for single-family homes.

Without mitigation or intervening structures, the future exterior noise levels on portions of Lots 5, 6, and 7 of the proposed subdivision, will exceed 60 decibels (dBA), Community Noise Equivalent Level (CNEL), due to future vehicle traffic on Fallbrook Street.

This report has been reviewed and updated in accordance with the County of San Diego Planning Department's recommendations, and updated traffic projections. New mitigation measures will consist of constructing a 3-foot high noise barrier on Lot 5 (a 1 foot increase from the previous noise analysis), and the introduction of a 2-foot high noise barrier on Lot 7.

A noise protection easement will be required for Lots 5, 6 and 7. Due to the newly available 2030 traffic forecast data, the 60 dBA CNEL contour will move further from the originally anticipated contour location.

Although the doubling in future traffic resulted in additional noise mitigation, Lots 1, 2, 3, 4 and 8 continue to be well distanced from the new 60 dBA CNEL contour line and therefore require no noise mitigation. The future Fallbrook Road extension is listed as a County CIP project, and the noise barriers listed above will be implemented by the County of San Diego when constructing the extension of Fallbrook Road. Although the construction of noise barriers is not required at this time, the project will be conditioned to establish a noise protection easement dedication for Lots 5, 6 and 7.

Interior mitigation of the residence on Lots 5, 6 and 7 for first-floor rooms facing the roadway, will not be necessary if the recommended sound barrier is constructed between the home and the roadway. Interior noise levels may exceed 45 dBA CNEL in the upper floors (if any) or unshielded first-floor rooms of homes on Lots 5 and 7, as the traffic noise may be louder in upper floors or rooms with a direct line-of sight to the roadway. The noise levels of any upper floors is estimated to range from 60.0 65 CNEL on these parcels. The mitigation of these upper floors and/or unprotected rooms is feasible and attainable through common construction practices; an acoustical analysis of the building plans could determine the exact nature, extent of, or need for interior noise mitigation.

2.0 INTRODUCTION

This report is submitted to satisfy the requirements of the County of San Diego for an acoustical analysis. Its purpose is to assess impacts of noise from traffic and other possible sources on the proposed project and to determine feasibility of mitigation, if necessary, to reduce exterior noise levels to below 60 dBA CNEL.

All noise level or sound level values presented herein are expressed in terms of decibels (dBA), with A-weighting to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, for a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where sound levels during evening hours of 7 p.m. to 10 p.m. have an added 5 dBA weighting, and sound levels during nighttime hours of 10 p.m. to 7 a.m. have an added 10 dBA weighting. This is similar to the Day-Night sound level, L_{DN}, which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours, but no added weighting on the evening hours. These metrics are used to express noise levels for both measurement and municipal regulations, for land use guidelines and enforcement of noise ordinances. Some of the data may be presented as octave-band filtered sound levels. Further explanations can be provided upon request.

2.1 Project Location

The property is identified as County of San Diego TM #5243. It consists of "Portion of Parcel 2 and all of the Remainder Parcel of Parcel Map 18202." The current address of the existing residence on the property is 495 Beavercreek Lane. According to the tentative map, the property consists of Assessor's Parcel Number (APN) 105-640-68 and a portion of 105-640-71. The project location is shown on the Thomas Guide vicinity map (page 1028, grid A3) in the attachments following this report. A topographic map and a satellite aerial photograph of the area are also provided in the attachments.

2.2 Project Description

The civil engineer has prepared a tentative map with proposed grading; a copy is provided with this report. The map shows eight subdivided lots for single-family homes. The subject property and all adjacent properties are residential use, zoned A70, and designated as Residential #2 in the general plan. Off-street parking will be available for all lots in this project.

3.0 ENVIRONMENTAL SETTING

3.1 Existing Noise Environment

A site visit was conducted on Friday, May 4, 2001. The project site is not currently impacted by traffic noise; as no through-street currently runs past the site. Therefore, no traffic noise measurement was possible. Calibration of the traffic noise prediction model was also not possible. Fallbrook Street does not currently pass through subject property, but is west of Stage Coach Lane.

A subsequent site visit was conducted on Thursday, November 15, 2001. A fifteen-minute ambient noise measurement was taken at the southern end of Beavercreek Lane, from 11:30 to 11:45 a.m. The hourly equivalent average noise level was 42.7 dB L_{EQ}, with instantaneous noise levels ranging from approximately 38 dB to 60 dB. The high noise levels were caused by light aircraft and helicopter over flights and intermittent construction noise.

A number of site visits to existing and planned residential sites in the Fallbrook area have been conducted by our staff during the past three years. Noise levels near Reche Road have ranged between 59.0 to 47.1 dBA L_{EQ}, Stage Coach Lane has been measured at 62.5 dBA L_{EQ}, and Alvarado Street has produced a noise level of 61.3 dBA L_{EQ} at locations within 100 feet of the edge of these roads. We have measured ambient noise levels in the range of 35 to 40 dBA L_{EQ} in Fallbrook and similar communities such as Poway, in areas where traffic and machinery noise are minimal or inaudible and only natural sounds are present.

3.2 Future Noise Environment

The projected future noise environment at the site will be a result of vehicle traffic on Fallbrook Street. Fallbrook Road is projected to have 8,000 ADT in the year 2030. The County of San Diego Department of Public Works projected that Fallbrook Street would eventually extend southeast from its current intersection with Stage Coach Lane to intersect Reche Road; it will be a two-lane, two-way, light collector know as SF 1416 of the circulation element. The future minimum design speed for Fallbrook Street is 40 mph. That is the speed used in our model of this road. Fallbrook Street will be approximately 60 feet wide from curb to curb. A k-factor of 2.0 dBA was added to all land-receiver pairs in future modeling, to automate the two-decibel addition to L_{EQ} values for conversion to CNEL, as described in Section 4.1 below.

4.0 METHODOLOGY

Field Measurement

Typically, a one-hour equivalent sound level measurement (L_{EQ}, A-Weighted) is recorded for at least one noise-sensitive location on the site. During the noise measurement, start and end times are recorded, vehicle counts are made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segment. Supplemental sound measurements of one hour or less in duration are often made to further describe the noise environment of the site.

For measurements of less than one hour duration, the measurement time is long enough for a representative traffic volume to occur, and the noise level (L_{EQ}) to stabilize; 15 minutes is usually sufficient. The vehicle counts are then converted to one-hour equivalent volumes by using the appropriate multiplier. When no roadway traffic is visible or audible, an ambient noise level measurement is typically conducted. Other field data gathered includes measuring or estimating distances, angles-of-view, slopes, elevations, roadway grades, and vehicle speeds. These data were checked against the available maps and records.

Roadway Noise Calculations

The Sound 32 program, released by the California Department of Transportation, Division of New Technology, Materials, and Research was used to calculate the future Hourly Noise Level (HNL) at various locations at the project site. The average daytime HNL is computed with Sound 32, using a daytime hourly average traffic volume of 0.058 times the ADT. This computation is based on the methodology developed in the Wyle Laboratories Study, which states that 87% of the traffic volume on an average roadway typically occurs between the hours of 7 a.m. and 10 p.m. The HNL is equivalent to the L_{EQ}, and both are converted to the CNEL by adding 2.0 decibels. Future CNEL values are calculated for desired receptor locations using future road alignment, elevations, lane configurations, projected traffic volumes, estimated truck mixes, and vehicle speeds. Noise attenuation methods may be tested and planned with Sound 32, as required.

5.0 IMPACTS

Exterior

Lots 5, 6, and 7 will be impacted by exterior noise levels over 60 dBA CNEL. Without mitigation or intervening structures, the future exterior on-site noise level contour of 60 dBA CNEL will run approximately 75 feet north of the northern edge of the roadway.

Future noise levels on Lots 5, 6, and 7 of the subject property will exceed 60 dBA CNEL, which is the noise limit for residential land uses. Due to the noise level exceeding 60 CNEL on portion of Lots 5, 6 and 7, exterior mitigation will be required for these parcels.

The future exterior noise level in the upper floors is estimated to range from 62.4 to 56.9 dBA CNEL on Lot 5 and from 60 to 65 dBA CNEL on Lots 5, 6 and 7.

Interior

The acceptable interior noise limit for residential properties is 45 dBA CNEL. It is possible that the future interior noise levels on Lots 5 and 7, in rooms facing the roadway in the upper floors of multi-story homes (if any), will exceed the limit without mitigation, due to the expected increase of traffic noise. This would also be the case for first-floor rooms facing the roadway on Lot 5, if these rooms are not shielded by a sound attenuation barrier.

6.0 MITIGATION

Exterior

Without mitigation, portions of Lots 5, 6 and 7 will be exposed to an exterior noise sound level in excess of 60 dBA CNEL. One feasible mitigation for this lot is specified below; please refer to the copy of the tentative map with conceptual grading in the attachments for further details. An alternate design for mitigation, based on proposed building plans in the future, may be preferable or more practical, but the specifics cannot be evaluated until detailed plans are available. It is possible that the placement and design of the house on a particular lot could provide enough noise shielding to alleviate the need for a barrier. An acoustical analysis update can be conducted when detailed building plans are available.

The mitigation requirements will consist of the following:

- A 3-foot high noise barrier on Lot 5 and a 2 foot high noise barrier on Lot 7. Noise barriers may consist of an earthen berm when the required height is 3 feet or less.
- A noise protection easement will be required for Lots 5, 6 and 7. Due to the newly available 2030 traffic forecast data, the 60 dBA CNEL contour will move further from the originally anticipated contour location.

Lots 1, 2, 3, 4 and 8 are well distanced from the new 60 dBA CNEL contour line and therefore require no noise mitigation. The future Fallbrook Road extension is listed as a County CIP project, and the noise barriers listed above will be implemented by the County of San Diego when constructing the extension of Fallbrook Road.

All heights specified above are relative to the building pad elevation of the parcel for which the mitigation is prescribed. In the event that a sound attenuation barrier and/or home is constructed on parcel(s) between the roadway or other parcel(s), it is possible that the need for mitigation could be lessened or alleviated. However, a supplemental acoustical analysis of the plans, after the intervening structure is built, would be necessary for this determination.

Sound attenuation barriers may consist solely of a sound attenuation wall, or may be a combination of an earthen berm and a sound attenuation wall. It is assumed that berms will be built with a slope not exceeding 2:1.

The sound attenuation wall should be a solid wall of masonry, wood, plastic, fiberglass, or a combination, with no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked; the wood can be tongue-and-groove. If wood is used, it must be at least ⅞-inch thick or have a density of at least 3½ pounds per square foot. Glass may be used on the upper portion of the wall, if it is desirable to preserve a view. Any gates in such a sound attenuation wall must be designed with overlapping closures. It is acceptable to extend any portion of any sound attenuation barrier, in order to provide protection to unprotected portions of a home, to create more outdoor usable space, or to provide further noise protection for other lots.

Interior

It is possible that rooms facing the roadway in the upper floors of multi-story homes, if any, on Lots 5 and 7 may require mitigation, if the grading and the sound attenuation barriers between the homes and the roadway do not provide enough noise protection to these rooms. An acoustical analysis would be required with submission of the building plans, to determine appropriate mitigation or design requirements. Any mitigation that may be required is feasible using standard building materials and construction methods; this may include mechanical ventilation, enhanced glazing, or both.

Please refer to the Sound 32 Data and Results and the tentative map provided in the attachments.

7.0 CERTIFICATION

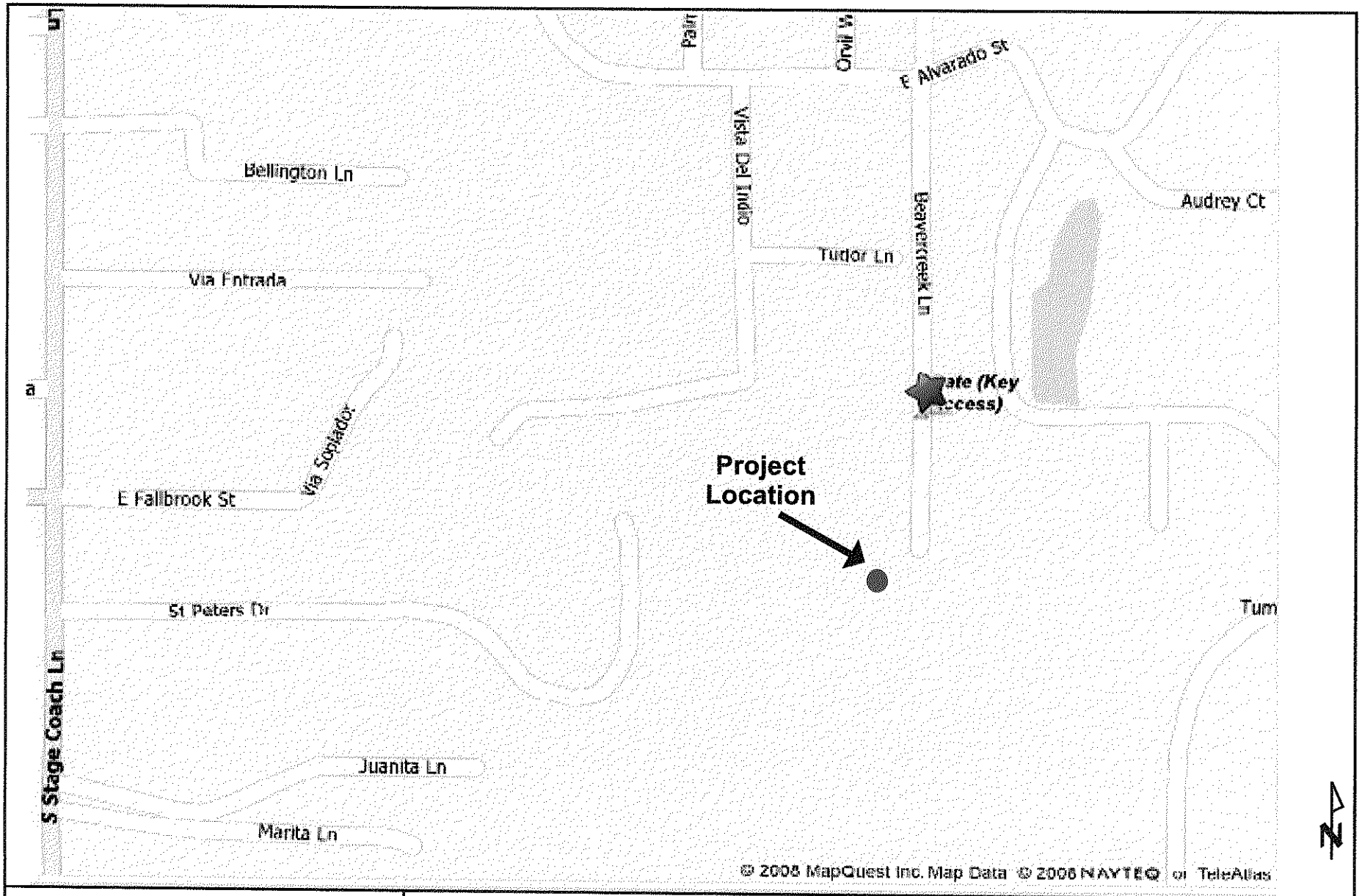
The findings and recommendations of this acoustical analysis report are a true and factual analysis of the potential environmental effects associated with this proposed development. This report was prepared by Steven Fiedler and Douglas Eilar.

EILAR ASSOCIATES, INC.

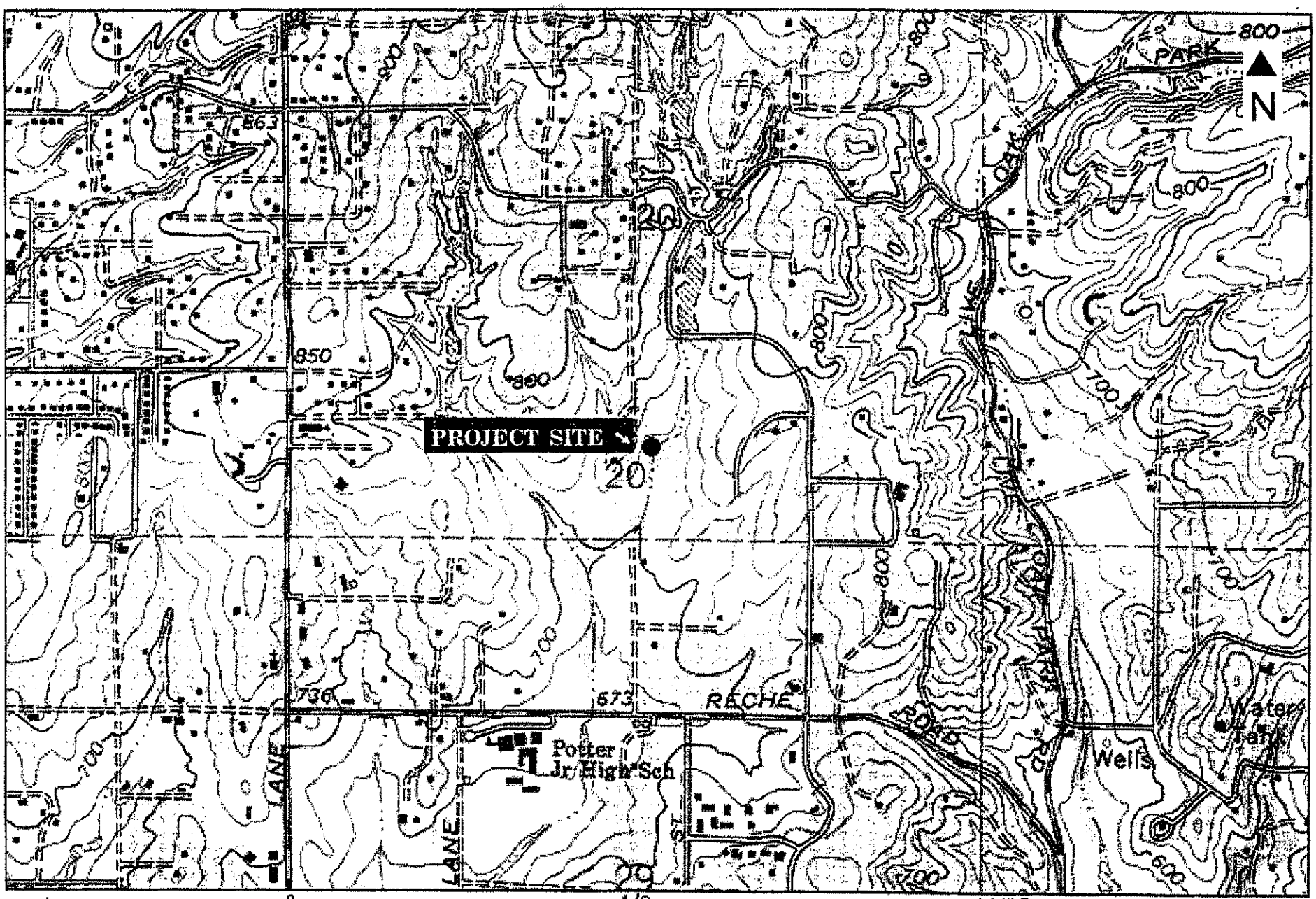
Douglas K. Eilar, Principal

8.0 REFERENCES

1. San Diego Association of Governments, Regional Internet Sites.
2. County of San Diego Transportation Planning, Nick Ortiz, 858-495-5488.
3. County of San Diego, *Noise Element to the General Plan.*
4. California Department of Transportation, *Sound 32 Traffic Noise Model.*
5. Wyle Laboratories, December, 1973, *Development of Ground Transportation Systems Noise Contours for the San Diego Region.*
6. County of San Diego Department of Planning draft letter of 12/4/08



Eilar Associates, Inc. **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Vicinity Map** **Job #A90101N1**	**Figure 1**



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TOPOGRAPHIC MAP

FIGURE 2

Eilar Associates, Inc. 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	Satellite Aerial Photograph Job # A90101N1	Figure 3

Sound 32 Data and Results

Site Visit Information	
Date	Friday, May 4, 2001
Time	2:00 - 2:30 p.m.
Conditions	Temperature in Mid 70s, Low Humidity, Clear Skies, West Wind at 3 mph
Measured Noise Level	N/A

Sound 32 Raw Data for Caltrans Version of Stamina2/Optima

Future ADT Traffic Data to Produce Noise Contours

```
INPUT DATA FILE    : FUTURE.TXT
BARRIER COST FILE  : CALIF$.DTA
DATE               : 06-27-2001
A10515
```

TRAFFIC DATA

LANE NO.	AUTO VPH	AUTO MPH	MEDIUM TRKS VPH	MEDIUM TRKS MPH	HEAVY TRKS VPH	HEAVY TRKS MPH	DESCRIPTION
1	111	40	2	40	2	40	southbound
2	111	40	2	40	2	40	northbound

LANE DATA

LANE NO.	SEG. NO.	GRADE COR.	X	Y	Z	SEGMENT DESCRIPTION	
1	1	NO	-1025.0	1145.0	790.0	L1	P1
	2	NO	-205.0	570.0	735.0	L1	P2
	3	NO	-135.0	525.0	730.0	L1	P3
	4	NO	-20.0	440.0	725.0	L1	P4
	5	NO	90.0	370.0	720.0	L1	P5
	6	NO	160.0	320.0	715.0	L1	P6
	7	NO	205.0	290.0	710.0	L1	P7
	8	NO	415.0	130.0	705.0	L1	P8
	9	NO	475.0	60.0	700.0	L1	P9
	10	NO	520.0	-20.0	695.0	L1	P10
			940.0	-925.0	635.0	L1	P11
2	1	NO	975.0	-910.0	635.0	L2	P1
	2	NO	555.0	-5.0	695.0	L2	P2
	3	NO	510.0	70.0	700.0	L2	P3
	4	NO	460.0	130.0	705.0	L2	P4
	5	NO	400.0	185.0	710.0	L2	P5
	6	NO	345.0	230.0	710.0	L2	P6
	7	NO	230.0	305.0	710.0	L2	P7
	8	NO	200.0	330.0	715.0	L2	P8
	9	NO	140.0	370.0	720.0	L2	P9
	10	NO	80.0	410.0	725.0	L2	P10
	11	NO	-80.0	525.0	730.0	L2	P11
	12	NO	-150.0	570.0	735.0	L2	P12
			-970.0	1145.0	790.0	L2	P13

RECEIVER DATA

REC.NO.	X	Y	Z	DNL	PEOPLE	ID
1	0.0	495.0	735.0	67	500	R-1
2	0.0	530.0	740.0	67	500	R-2
3	0.0	570.0	745.0	67	500	R-3
4	0.0	620.0	750.0	67	500	R-4
5	0.0	665.0	755.0	67	500	R-5
6	300.0	350.0	715.0	67	500	R-6
7	300.0	460.0	720.0	67	500	R-7
8	300.0	570.0	725.0	67	500	R-8
9	300.0	630.0	730.0	67	500	R-9
10	550.0	75.0	705.0	67	500	R-10
11	550.0	150.0	710.0	67	500	R-11
12	550.0	245.0	715.0	67	500	R-12
13	550.0	315.0	720.0	67	500	R-13
14	550.0	375.0	725.0	67	500	R-14
15	550.0	430.0	730.0	67	500	R-15
16	700.0	40.0	705.0	67	500	R-16
17	700.0	120.0	710.0	67	500	R-17
18	700.0	290.0	715.0	67	500	R-18

RECEIVER	LEQ
R-1	65.3
R-2	62.3
R-3	60.3

```
      R-4         58.7
      R-5         57.5
      R-6         60.8
      R-7         57.5
      R-8         55.4
      R-9         54.6
      R-10        63.3
      R-11        60.2
      R-12        57.7
      R-13        56.3
      R-14        55.4
      R-15        54.6
      R-16        57.6
      R-17        56.5
      R-18        54.4
================================================================================
DROP-OFF RATES
--------------
ALL LANE/RECEIVER PAIRS =  3.0 DBA
================================================================================
K - CONSTANTS
-------------
ALL LANE RECEIVER/PAIRS =   2.0 DBA
================================================================================
```

Future ADT Traffic Data with Proposed Grading

```
INPUT DATA FILE    : LOT5.TXT
BARRIER COST FILE  : CALIF$.DTA
DATE               : 06-27-2001
A10515
================================================================================
TRAFFIC DATA
------------
LANE          AUTO       MEDIUM TRKS     HEAVY TRKS
 NO.       VPH  MPH       VPH  MPH        VPH  MPH    DESCRIPTION
--------------------------------------------------------------------------------
  1        111   40         2   40          2   40    southbound
  2        197   40         4   40          4   40    northbound
================================================================================
LANE DATA
---------
LANE SEG. GRADE                                        SEGMENT
 NO.  NO. COR.          X           Y          Z      DESCRIPTION
--------------------------------------------------------------------------------
  1    1   NO       -1025.0      1145.0      790.0   L1  P1
       2   NO        -205.0       570.0      735.0   L1  P2
       3   NO        -135.0       525.0      730.0   L1  P3
       4   NO         -20.0       440.0      725.0   L1  P4
       5   NO          90.0       370.0      720.0   L1  P5
       6   NO         160.0       320.0      715.0   L1  P6
       7   NO         205.0       290.0      710.0   L1  P7
       8   NO         415.0       130.0      705.0   L1  P8
       9   NO         475.0        60.0      700.0   L1  P9
      10   NO         520.0       -20.0      695.0   L1  P10
                      940.0      -925.0      635.0   L1  P11

  2    1   NO         975.0      -910.0      635.0   L2  P1
       2   NO         555.0        -5.0      695.0   L2  P2
       3   NO         510.0        70.0      700.0   L2  P3
       4   NO         460.0       130.0      705.0   L2  P4
       5   NO         400.0       185.0      710.0   L2  P5
       6   NO         345.0       230.0      710.0   L2  P6
       7   NO         230.0       305.0      710.0   L2  P7
       8   NO         200.0       330.0      715.0   L2  P8
       9   NO         140.0       370.0      720.0   L2  P9
      10   NO          80.0       410.0      725.0   L2  P10
      11   NO         -80.0       525.0      730.0   L2  P11
      12   NO        -150.0       570.0      735.0   L2  P12
                     -970.0      1145.0      790.0   L2  P13
================================================================================
BARRIER DATA
------------
Barrier No.  1             Description: graded berm
Type - (1)BERM
Height Increment (DELZ)= 0.0          No. Height Changes (P)=0
                                  GROUND      TOP          BARRIER
SEG.        X          Y          (Z0)       (Z)          HEIGHTS AT ENDS
```

1	525.0	140.0	0.0	705.0	*B1 P1	* %705
2	565.0	100.0	0.0	705.0	*B1 P2	* %705
	610.0	150.0	0.0	705.0	*B1 P3	* %705

RECEIVER DATA

REC.NO.	X	Y	Z	DNL	PEOPLE	ID
1	565.0	120.0	710.0	67	500	R-1
2	565.0	120.0	720.0	67	500	R-2
3	535.0	150.0	710.0	67	500	R-3
4	535.0	150.0	720.0	67	500	R-4
5	575.0	180.0	710.0	67	500	R-5
6	575.0	180.0	720.0	67	500	R-6
7	605.0	160.0	710.0	67	500	R-7
8	605.0	160.0	720.0	67	500	R-8

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	R-1	67.	500.	62.2
2	R-2	67.	500.	62.2
3	R-3	67.	500.	62.3
4	R-4	67.	500.	62.5
5	R-5	67.	500.	58.2
6	R-6	67.	500.	60.2
7	R-7	67.	500.	58.5
8	R-8	67.	500.	59.7

DROP-OFF RATES

ALL LANE/RECEIVER PAIRS = 3.0 DBA

K - CONSTANTS

ALL LANE RECEIVER/PAIRS = 2.0 DBA

INPUT DATA FILE : LOT7.TXT
BARRIER COST FILE : CALIF$.DTA
DATE : 06-27-2001
A10515

TRAFFIC DATA

LANE NO.	AUTO VPH	AUTO MPH	MEDIUM TRKS VPH	MEDIUM TRKS MPH	HEAVY TRKS VPH	HEAVY TRKS MPH	DESCRIPTION
1	111	40	2	40	2	40	southbound
2	197	40	4	40	4	40	northbound

LANE DATA

LANE NO.	SEG. NO.	GRADE COR.	X	Y	Z	SEGMENT DESCRIPTION	
1	1	NO	-1025.0	1145.0	790.0	L1	P1
	2	NO	-205.0	570.0	735.0	L1	P2
	3	NO	-135.0	525.0	730.0	L1	P3
	4	NO	-20.0	440.0	725.0	L1	P4
	5	NO	90.0	370.0	720.0	L1	P5
	6	NO	160.0	320.0	715.0	L1	P6
	7	NO	205.0	290.0	710.0	L1	P7
	8	NO	415.0	130.0	705.0	L1	P8
	9	NO	475.0	60.0	700.0	L1	P9
	10	NO	520.0	-20.0	695.0	L1	P10
			940.0	-925.0	635.0	L1	P11
2	1	NO	975.0	-910.0	635.0	L2	P1
	2	NO	555.0	-5.0	695.0	L2	P2
	3	NO	510.0	70.0	700.0	L2	P3
	4	NO	460.0	130.0	705.0	L2	P4
	5	NO	400.0	185.0	710.0	L2	P5
	6	NO	345.0	230.0	710.0	L2	P6
	7	NO	230.0	305.0	710.0	L2	P7
	8	NO	200.0	330.0	715.0	L2	P8
	9	NO	140.0	370.0	720.0	L2	P9
	10	NO	80.0	410.0	725.0	L2	P10
	11	NO	-80.0	525.0	730.0	L2	P11

```
      12  NO        -150.0        570.0      735.0  L2  P12
                    -970.0       1145.0      790.0  L2  P13
================================================================================
BARRIER DATA
------------
Barrier No.  1             Description: graded berm
Type - (1)BERM
Height Increment (DELZ)= 0.0           No. Height Changes (P)=0
                                  GROUND       TOP            BARRIER
SEG.         X          Y         (Z0)        (Z)            HEIGHTS AT ENDS
--------------------------------------------------------------------------------
 1         15.0       550.0         0.0       740.0 *B1 P1    * %740
 2         30.0       520.0         0.0       740.0 *B1 P2    * %740
          135.0       550.0         0.0       740.0 *B1 P3    * %740
================================================================================
RECEIVER DATA
-------------
REC.NO.      X          Y          Z     DNL PEOPLE    ID
--------------------------------------------------------------------------------
  1        40.0       540.0      745.0    67   500     R-1
  2        40.0       540.0      755.0    67   500     R-2
  3        30.0       580.0      745.0    67   500     R-3
  4        30.0       580.0      755.0    67   500     R-4
  5        80.0       600.0      745.0    67   500     R-5
  6        80.0       600.0      755.0    67   500     R-6
  7       100.0       560.0      745.0    67   500     R-7
  8       100.0       560.0      755.0    67   500     R-8

REC REC ID     DNL   PEOPLE    LEQ(CAL)
================================
 1  R-1         67.     500.    60.3
 2  R-2         67.     500.    62.0
 3  R-3         67.     500.    58.9
 4  R-4         67.     500.    60.8
 5  R-5         67.     500.    56.2
 6  R-6         67.     500.    58.4
 7  R-7         67.     500.    57.3
 8  R-8         67.     500.    59.8
================================================================================
DROP-OFF RATES
--------------
ALL LANE/RECEIVER PAIRS =  3.0 DBA
================================================================================
K - CONSTANTS
-------------
ALL LANE RECEIVER/PAIRS =   2.0 DBA
================================================================================
```

Future ADT Traffic Data Mitigation of Lot 5

```
INPUT DATA FILE    : LOT5BERM.TXT
BARRIER COST FILE  : CALIF$.DTA
DATE               : 06-27-2001
A10515
================================================================================
TRAFFIC DATA
------------
LANE          AUTO       MEDIUM TRKS     HEAVY TRKS
 NO.        VPH  MPH       VPH  MPH        VPH  MPH    DESCRIPTION
--------------------------------------------------------------------------------
  1         111   40         2   40          2   40    southbound
  2         197   40         4   40          4   40    northbound
================================================================================
LANE DATA
---------
LANE SEG. GRADE                                        SEGMENT
 NO.  NO. COR.          X           Y          Z      DESCRIPTION
--------------------------------------------------------------------------------
  1    1   NO       -1025.0      1145.0      790.0   L1  P1
       2   NO        -205.0       570.0      735.0   L1  P2
       3   NO        -135.0       525.0      730.0   L1  P3
       4   NO         -20.0       440.0      725.0   L1  P4
       5   NO          90.0       370.0      720.0   L1  P5
       6   NO         160.0       320.0      715.0   L1  P6
       7   NO         205.0       290.0      710.0   L1  P7
       8   NO         415.0       130.0      705.0   L1  P8
       9   NO         475.0        60.0      700.0   L1  P9
      10   NO         520.0       -20.0      695.0   L1  P10
```

			940.0	-925.0	635.0	L1	P11
2	1	NO	975.0	-910.0	635.0	L2	P1
	2	NO	555.0	-5.0	695.0	L2	P2
	3	NO	510.0	70.0	700.0	L2	P3
	4	NO	460.0	130.0	705.0	L2	P4
	5	NO	400.0	185.0	710.0	L2	P5
	6	NO	345.0	230.0	710.0	L2	P6
	7	NO	230.0	305.0	710.0	L2	P7
	8	NO	200.0	330.0	715.0	L2	P8
	9	NO	140.0	370.0	720.0	L2	P9
	10	NO	80.0	410.0	725.0	L2	P10
	11	NO	-80.0	525.0	730.0	L2	P11
	12	NO	-150.0	570.0	735.0	L2	P12
			-970.0	1145.0	790.0	L2	P13

BARRIER DATA

Barrier No. 1 Description: graded berm
Type - (4)CONCRETE
Height Increment (DELZ)= 0.0 No. Height Changes (P)=0

SEG.	X	Y	GROUND (Z0)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	525.0	140.0	0.0	708.5 *B1 P1	* %709
2	565.0	100.0	0.0	708.5 *B1 P2	* %709
	610.0	150.0	0.0	708.5 *B1 P3	* %709

RECEIVER DATA

REC.NO.	X	Y	Z	DNL	PEOPLE	ID
1	565.0	120.0	710.0	67	500	R-1
2	565.0	120.0	720.0	67	500	R-2
3	540.0	145.0	710.0	67	500	R-3
4	540.0	145.0	720.0	67	500	R-4
5	575.0	180.0	710.0	67	500	R-5
6	575.0	180.0	720.0	67	500	R-6
7	605.0	160.0	710.0	67	500	R-7
8	605.0	160.0	720.0	67	500	R-8

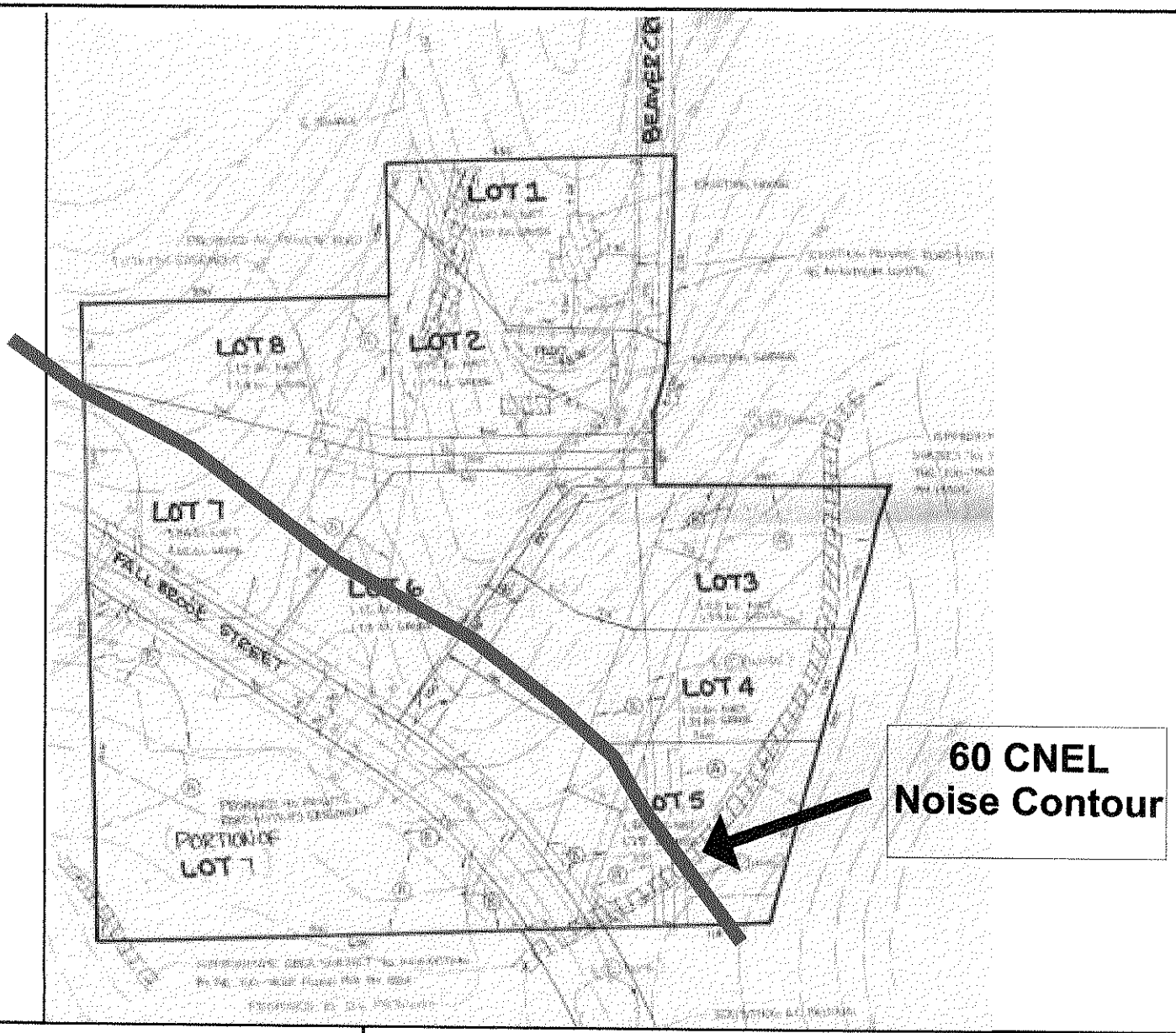
REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	R-1	67.	500.	58.3
2	R-2	67.	500.	62.2
3	R-3	67.	500.	60.3
4	R-4	67.	500.	62.5
5	R-5	67.	500.	58.2
6	R-6	67.	500.	59.6
7	R-7	67.	500.	57.1
8	R-8	67.	500.	59.3

DROP-OFF RATES

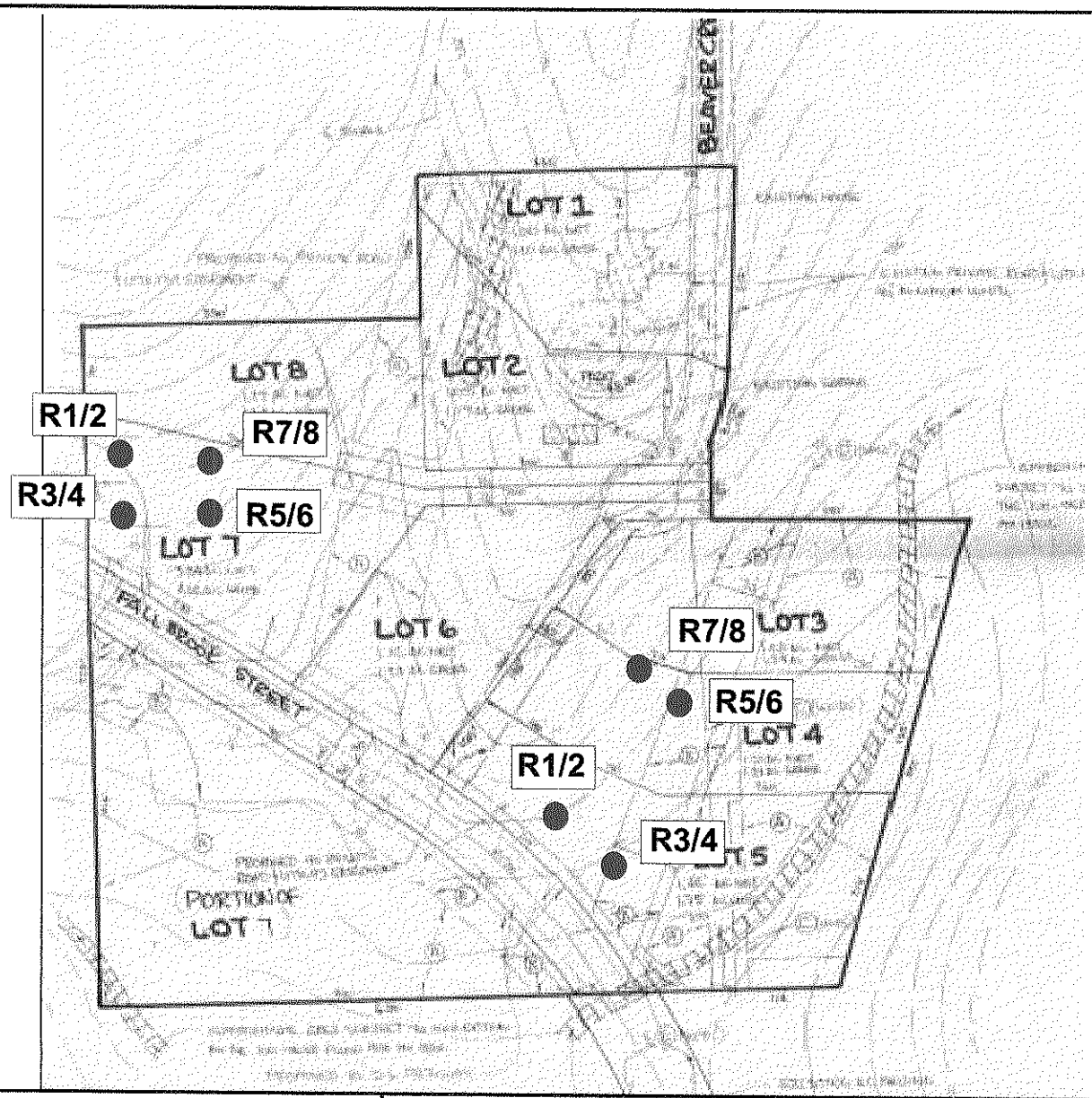
ALL LANE/RECEIVER PAIRS = 3.0 DBA

K - CONSTANTS

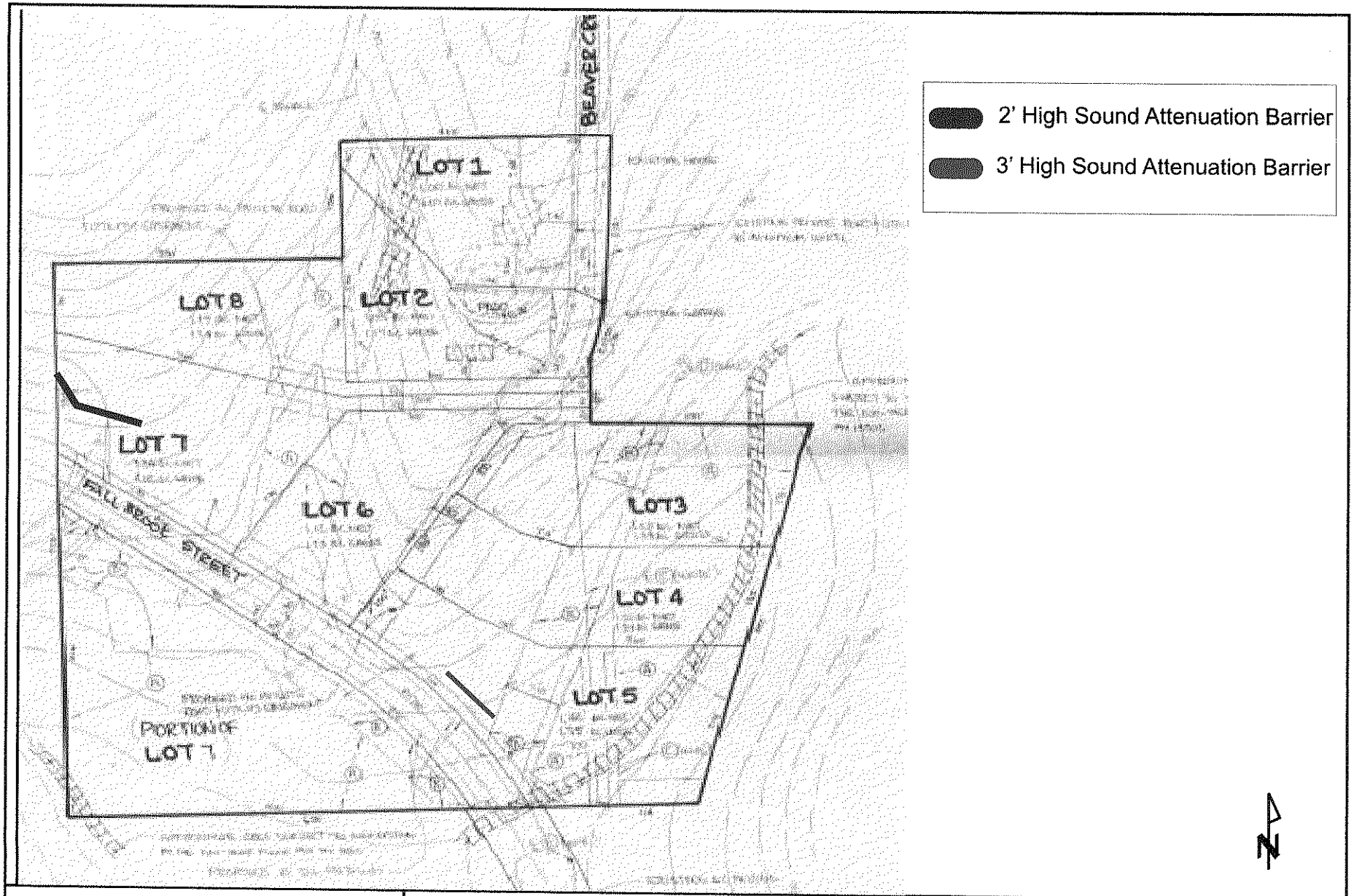
ALL LANE RECEIVER/PAIRS = 2.0 DBA



Eilar Associates, Inc. 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	Map Showing Future Noise Contour Job #A90101N1	Figure 4



Eilar Associates, Inc. 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	**Map Showing Receiver Locations** **Job #A90101N1**	**Figure 5**



Eilar Associates, Inc. **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Map Showing Proposed Sound Barriers** **Job #A90101N1**	**Figure 6**